

OCCASIONAL PAPERS

THE MUSEUM

TEXAS TECH UNIVERSITY

NUMBER 67

5 SEPTEMBER 1980

ARACHNIDS (EXCLUDING ACARINA AND PSEUDOSCORPIONIDA) OF THE WICHITA MOUNTAINS WILDLIFE REFUGE, OKLAHOMA

JAMES C. COKENDOLPHER AND FRANK D. BRYCE

The Wichita Mountains are located in eastern Greer, southern Kiowa, and northwestern Comanche counties in Oklahoma. Since their formation more than 300 million years ago, these rugged mountains have been fragmented and weathered, until today the highest peak (Mount Pinchot) stands only 756 meters above sea level (Tyler, 1977). The mountains are composed predominantly of granite and gabbro. Forests of oak, elm, and walnut border most waterways, while at elevations from 153 to 427 meters prairies are the predominant vegetation type. A more detailed summary of the climatic and biotic features of the Wichitas has been presented by Blair and Hubbell (1938).

A large tract of land in the eastern range of the Wichita Mountains (now northeastern Comanche County) was set aside as the Wichita National Forest by President McKinley during 1901. In 1905, President Theodore Roosevelt created a game preserve on those lands managed by the Forest Service. Since 1935, this preserve has been known as the Wichita Mountains Wildlife Refuge.

Numerous papers on Oklahoma spiders have been published (Bailey and Chada, 1968; Bailey *et al.*, 1968; Banks *et al.*, 1932; Branson, 1958, 1959, 1966, 1968; Branson and Drew, 1972; Grothaus, 1968; Harrel, 1962, 1965; Horner, 1975; Rogers and Horner, 1977), but only a single, comprehensive work (Banks *et al.*, 1932) exists covering all arachnid orders in the state. Further additions and annotations to the arachnid fauna of Oklahoma can be found

in recent revisionary studies. Compared to the state in general, however, the spiders of the Wichita Mountains Wildlife Refuge are poorly known. The one study conducted in this area was carried out during the summers of 1926 and 1928 as part of the University of Oklahoma Biological Survey (Banks *et al.*, 1932). A few specimens were collected later in the 1930s and intermittent samples were taken between 1965 and 1976, but it was not until 1977 and 1978 that a concentrated effort was made to document the arachnid fauna in the region. What follows is a summary of the arachnids (excluding Acarina and Pseudoscorpionida) of the Wichita Mountains Wildlife Refuge based on surviving specimens from the above collections. Specimens currently are housed in the Stoval Museum, University of Oklahoma, Norman; Biology Department, Midwestern State University, Wichita Falls, Texas; The American Museum of Natural History, New York; The Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts. This work also includes synonymies of names used by previous authors, in most cases due to misidentifications, and pertinent bibliographic references to descriptions, recent revisions, or taxonomic changes. Additionally, the order Uropygida and many species of spiders are recorded from Oklahoma for the first time.

ANNOTATED LIST OF SPECIES

Order ARANEAE

Family THERAPHOSIDAE Thorell, 1870

Dugesiella hentzi (Girard), 1853

Bibliography.—Girard (1853).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Eurypelma hentzi* Girard.

Family CTENIZIDAE Thorell, 1887

Myrmekeiaphila comstocki Bishop and Crosby, 1926

Bibliography.—Bishop and Crosby (1926).

Comments.—Many males taken in pitfall traps in late March and April are the first records of this species in Oklahoma.

Ummidia audouini (Lucas), 1836

Bibliography.—Kaston (1978).

Comments.—A male collected 22 June 1928 by N. M. Newport in the Wichita National Forest, identified as *Pachyomerus carobivorus* Atkinson, 1886, by Newport, was not listed in Banks *et al.* (1932).

Family FILISTATIDAE Ausserer, 1867

Filistata hibernalis Hentz, 1842

Bibliography.—Kaston (1978).

Family OECOBIIDAE Blackwall, 1862

Oecobius cellariorum (Dugès), 1836

Bibliography.—Shear (1970).

Comments.—Reported (Grothaus, 1968) elsewhere in Oklahoma as *Oecobius texanus* Bryant, 1936.

Family ULOBORIDAE O. Pickard-Cambridge, 1871

Uloborus glomosus (Walckenaer), 1842

Bibliography.—Muma and Gertsch (1964).

Comments.—Reported (Banks *et al.*, 1932) in Oklahoma as *Uloborus plumipes* Lucas, 1846.

Family DICTYNIDAE O. Pickard-Cambridge, 1871

Dictyna consulta Gertsch, 1936

Bibliography.—Chamberlin and Gertsch (1958).

Dictyna bellans Chamberlin, 1919

Bibliography.—Chamberlin and Gertsch (1958).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Dictyna longispina* Emerton, 1888.

Dictyna volucripes Keyserling, 1882

Bibliography.—Chamberlin and Gertsch (1958).

Lathys delicatula Gertsch and Mulaik, 1936

Bibliography.—Chamberlin and Gertsch (1958).

Lathys sp.

Comments.—This species, apparently undescribed, was found only in oak litter and under rocks from late October to early December. Males have not been collected to date.

Family AMAUROBIIDAE Thorell, 1870

Titanoeca americana Emerton, 1888

Bibliography.—Leech (1972).

Family LOXOSCELIDAE Simon, 1893

Loxosceles reclusa Gertsch and Mulaik, 1940

Bibliography.—Gertsch (1958a).

Comments.—Reported (Banks *et al.*, 1932) as *Loxosceles rufescens* (Dufour), 1820.

Family DIGUETIDAE Gertsch, 1949

Diguettia canities (McCook), 1890

Bibliography.—Gertsch (1958b).

Family SEGESTRIIDAE Simon, 1893

Ariadna bicolor (Hentz), 1827

Bibliography.—Beatty (1970).

Family PHOLCIDAE C. L. Koch, 1850

Psilochorus enaulus Crosby, 1926

Bibliography.—Gertsch and Mulaik (1940).

Comments.—Reported (Harrel, 1965) in the family Agelenidae.

Psilochorus imitatus Gertsch and Mulaik, 1940

Bibliography.—Gertsch and Mulaik (1940).

Comments.—Reported (Bailey *et al.*, 1968) in the family Clubionidae.

Psilochorus pullulus Hentz, 1850

Bibliography.—Kaston (1948).

Spermophora meridionalis Hentz, 1841

Bibliography.—Kaston (1948).

Comments.—An immature of this monotypic genus was collected on 12 November from under a rock and represents a new record for the state.

Family THERIDIIDAE Sundevall, 1833

Achaeearanea tepidariorum (C. L. Koch), 1841

Bibliography.—Levi (1967).

Enoplognatha cf. *marmorata* (Hentz), 1850

Bibliography.—Levi (1957a).

Euryopsis cf. *texana* Banks, 1908

Bibliography.—Levi (1954).

Comments.—A specimen was taken from under a rock on 29 October. As the palpi were absent, the sex and specific identity could not be determined for certain.

Euryopsis weesei Levi, 1963

Bibliography.—Levi (1963).

Comments.—The male reported (Banks *et al.*, 1932) as *Euryopsis emertoni* Bryant, 1933, was designated the holotype of *E. weesei* (Levi, 1963).

Latrodectus mactans (Fabricius), 1775

Bibliography.—Levi (1959).

Latrodectus variolus (Walckenaer), 1837

Bibliography.—McCrone and Levi (1964); Levi and Randolph (1975).

Comments.—Reported (Branson, 1966) elsewhere in Oklahoma as *Latrodectus curacaviensis* (Müller), 1776.

Steatoda triangulosa (Walckenaer), 1892

Bibliography.—Levi (1957b).

Comments.—Reported (Banks *et al.*, 1932; Branson, 1966) elsewhere in Oklahoma as *Teutana triangulosa* (Walckenaer).

Theridion murarium Emerton, 1882

Bibliography.—Levi (1957a).

Family LINYPHIIDAE Blackwall, 1859

Bathyphantes sp.

Bibliography.—Ivie (1969).

Comments.—A male and female of this small species, apparently undescribed, were taken from under a rock during March. These specimens were in association with ants.

Frontinella pyramitela (Walckenaer), 1837

Bibliography.—Kaston (1948).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Linyphia communis* Hentz, 1850; and elsewhere in Oklahoma as *Frontinella communis* (Hentz) by Bailey and Chada (1968) and Branson (1966, 1968).

Prolinyphia marginata (C. L. Koch), 1834

Bibliography.—Kaston (1948, 1976).

Comments.—Reported (Banks *et al.*, 1932; Grothaus, 1968) as *Linyphia marginata* C. L. Koch.

Family MICRYPHANTIDAE Bertkau, 1872

Ceraticelus sp.

Comments.—Two males, taken during June, were swept from blooms of *Thelesperma* sp. (Compositae). As the genus is in need of revisionary studies, no specific name can be applied with certainty.

Erigone autumnalis Emerton, 1882

Bibliography.—Crosby and Bishop (1928); Kaston (1948).

Idionella cf. *rugosus* (Crosby), 1905

Bibliography.—Crosby (1905); Kaston (1948, 1976).

Comments.—A male taken in a pitfall trap during May is the first record of this genus in Oklahoma.

Wubana drassoides (Emerton), 1882

Bibliography.—Kaston (1948).

Comments.—A male sifted from leaf (oak) litter during October is a new record for the state.

Family ARANEIDAE Simon, 1895

Acanthepeira stellata Walckenaer, 1805

Bibliography.—Levi (1976).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Plectana stellata* (Hentz), 1850. Branson and Drew (1972) give the author of this species as Marx.

Araneus illaudatus (Gertsch and Mulaik), 1936

Bibliography.—Levi (1971, 1975*b*).

Comments.—Three females taken on the outside of buildings in autumn are new records for Oklahoma.

Argiope aurantia Lucas, 1833

Bibliography.—Levi (1968).

Argiope trifasciata (Förskal), 1775

Bibliography.—Levi (1968).

Cyclosa turbinata (Walckenaer), 1841

Bibliography.—Levi (1977*a*).

Eustala anastera (Walckenaer), 1841

Bibliography.—Levi (1977*a*).

Comments.—Reported (Branson, 1966, 1968) elsewhere in Oklahoma as *Eustala triflex* (Walckenaer), 1841, and in the Wichita National Forest as *Epeira prompta* Hentz, 1847, and *Epeira conchlea* McCook, 1888, by Banks *et al.* (1932).

Eustala cepina (Walckenaer), 1841

Bibliography.—Levi (1977*a*).

Eustala emertoni (Banks), 1904

Bibliography.—Levi (1977*a*).

Gea heptagon (Hentz), 1850

Bibliography.—Levi (1968).

Comments.—An immature of this monotypic genus, taken in autumn, is the first record in Oklahoma.

Larinia directa (Hentz), 1847

Bibliography.—Levi (1975*a*).

Leucauge venusta (Walckenaer), 1837

Bibliography.—Kaston (1948, 1976).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Leucauge hortorum* Hentz, 1847. Erroneously reported (Branson, 1966) in the family Tetragnathidae.

Mangora gibberosa (Hentz), 1847

Bibliography.—Levi (1975*a*).

Mangora placida (Hentz), 1847

Bibliography.—Levi (1975*a*).

Mecynogea lemniscata (Walckenaer), 1842

Bibliography.—Levi (1968); Kaston (1978).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Allepeira basilica* (McCook), 1878.

Metepeira labyrinthea (Hentz), 1847

Bibliography.—Levi (1977b).

Micrathena gracilis (Walckenaer), 1841

Bibliography.—Levi (1978).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Acrosoma gracilis* (Walckenaer).

Nectenea cornuta (Clerck), 1757

Bibliography.—Levi (1974).

Comments.—Reported (Banks *et al.*, 1932) elsewhere in Oklahoma as *Epeira strix* Hentz, 1857, and as *Araneus cornutus* (Clerck) by Branson (1966, 1968).

Neoscona arabesca (Walckenaer), 1841

Bibliography.—Berman and Levi (1971).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Epeira trivittata* Keyserling, 1863.

Neoscona hentzii (Keyserling), 1863

Bibliography.—Berman and Levi (1971).

Neoscona oaxacensis (Keyserling), 1863

Bibliography.—Berman and Levi (1971).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Epeira oaxacensis* Keyserling.

Hypsosinga funebris (Keyserling), 1893

Bibliography.—Levi (1972, 1975b).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Singa shefferi* Banks, 1910.

Family TETRAGNATHIDAE Menge, 1866

Tetragnatha elongata Walckenaer, 1837

Bibliography.—Seeley (1928).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Tetragnatha grallator* Hentz, 1875.

Tetragnatha laboriosa Hentz, 1850

Bibliography.—Seeley (1928).

Tetragnatha pallescens O. Pickard-Cambridge, 1905

Bibliography.—Seeley (1928).

Comments.—Reported (Banks *et al.*, 1932) as *Eugnatha pallescens* (Cambridge).

Family AGELENIDAE C. L. Koch, 1837

Agelenopsis emertoni Chamberlin and Ivie, 1935

Bibliography.—Chamberlin and Ivie (1941)

Comments.—Reported (Banks *et al.*, 1932) in part as *Agelena naevia* Hentz, 1847.

Agelenopsis naevia (Walckenaer), 1805

Bibliography.—Chamberlin and Ivie (1941).

Comments.—Reported (Banks *et al.*, 1932) in part as *Agelena naevia* Hentz, 1847.

Cicurina arizona Chamberlin and Ivie, 1940

Bibliography.—Chamberlin and Ivie (1940).

Family MIMETIDAE Simon, 1890

Mimetus hesperus Chamberlin, 1923

Bibliography.—Chamberlin (1923).

Family PISAURIDAE Simon, 1890

Dolomedes scriptus Hentz, 1845

Bibliography.—Carico (1973).

Dolomedes triton (Walckenaer), 1837

Bibliography.—Carico (1973).

Comments.—Reported (Branson, 1966; Grothaus, 1968) in Oklahoma as *Dolomedes triton sexpunctatus* Hentz, 1845, and as *Dolomedes sexpunctatus* Hentz, 1845, by Banks *et al.* (1932) and Branson (1968).

Dolomedes vittatus Walckenaer, 1837

Bibliography.—Carico (1973).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Dolomedes urinator* Hentz, 1845, and in part as *Dolomedes scriptus* Hentz, 1845.

Pelopatis undulata (Keyserling), 1887

Bibliography.—Kaston (1978).

Pisaurina dubia (Hentz), 1847

Bibliography.—Carico (1972).

Comments.—Reported (Banks *et al.*, 1932) elsewhere in Oklahoma as *Thanatidius dubius* Hentz.

Pisaurina mira (Walckenaer), 1837

Bibliography.—Carico (1972).

Comments.—Reported (Grothaus 1968; Harrel, 1965) elsewhere in Oklahoma as *Dapanus mirus* (Walckenaer).

Family LYCOSIDAE, Sundevall, 1833

Allocosa funerea (Hentz), 1844

Bibliography.—Chamberlin (1908); Kaston (1948).

Comments.—Reported (Branson, 1968; Harrel, 1965) elsewhere in Oklahoma as *Arctosa funerea* (Hentz).

Alopecosa kochi (Keyserling), 1877

Bibliography.—Dondale and Redner (1979).

Arctosa littoralis (Hentz), 1844

Bibliography.—Kaston (1948, 1976).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Trocosa cinerea* (Fabricius), 1790.

Arctosa noctuabunda (Montgomery), 1904

Bibliography.—Chamberlin (1908).

Comments.—A male and female taken in pitfall traps during May are the first records for Oklahoma. The traps were in low lying pastures.

Geolycosa missourensis (Banks), 1894

Bibliography.—Wallace (1942).

Lycosa avara (Keyserling), 1876

Bibliography.—Chamberlin (1908); Kaston (1948).

Comments.—Reported (Grothaus, 1968; Harrel, 1965) in Oklahoma as *Trocosa avara* (Keyserling).

Lycosa carolinensis Walckenaer, 1837

Bibliography.—Kaston (1948).

Lycosa pulchra (Keyserling), 1877

Bibliography.—Chamberlin (1908); Gertsch (1935a); Dondale and Redner (1978).

Comments.—Probably same as *Lycosa gulosa* (Walckenaer), 1837, of Bailey and Chada (1968) and Harrel (1965).

Lycosa punctulata Hentz, 1844

Bibliography.—Kaston (1948).

Lycosa rabida Walckenaer, 1837

Bibliography.—Kaston (1948).

Lycosa sp.

Comments.—The genus *Lycosa* is in need of revision. We are unable to determine specific identifications on three forms (two known by males, the third by males and females) in the Refuge.

Paradosa mercurialis Montgomery, 1903

Bibliography.—Barnes (1959).

Pardosa pauxilla Montgomery, 1904

Bibliography.—Chamberlin (1908).

Pirata insularis Emerton, 1885

Bibliography.—Wallace and Exline (1977).

Schizocosa avida (Walckenaer), 1837

Bibliography.—Dondale and Redner (1978).

Comments.—Reported (Banks *et al.*, 1932) in Oklahoma as *Lycosa erratica* Hentz, 1844.

Schizocosa bilineata (Emerton), 1885

Bibliography.—Dondale and Redner (1978).

Schizocosa mccooki (Montgomery), 1904

Bibliography.—Dondale and Redner (1978).

Schizocosa ocreata (Hentz), 1844

Bibliography.—Dondale and Redner (1978).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Schizogyna ocreata* (Hentz).

Schizocosa retrorosa (Banks), 1911

Bibliography.—Dondale and Redner (1978).

Schizocosa saltatrix (Hentz), 1844

Bibliography.—Dondale and Redner (1978).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Schizogyna gracilis* (Banks), 1892.

Schizocosa? perplexa Bryant, 1936

Bibliography.—Dondale and Redner (1978).

Comments.—The male reported (Banks *et al.*, 1932) as *Schizogyna ocreata* Hentz is this species. The male was taken on 25 June 1928 in the Wichita National Forest. Dondale and Redner (1978) excluded this species from *Schizocosa*. This is the first record of this species in Oklahoma.

Trocosa terricola (Thorell), 1856

Bibliography.—Kaston (1948, 1976).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Lycosa pratensis* (Emerton), 1885.

Family OXYOPIDAE Thorell, 1870

Oxyopes apollo Brady, 1964

Bibliography.—Brady (1964).

Oxyopes scalaris Hentz, 1845

Bibliography.—Brady (1964).

Oxyopes salticus Hentz, 1845

Bibliography.—Brady (1964).

Family GNAPHOSIDAE Pocock, 1884

Callilepis imbecilla (Keyserling), 1887

Bibliography.—Platnick (1975).

Comments.—See *Drassyllus* cf. *aprilinus* below.

Cesonia cf. *bilineata* (Hentz), 1847

Bibliography.—Kaston (1948).

Comments.—Only immatures of this species are known from the Refuge.

***Drassodes auriculoides* Barrows, 1919**

Bibliography.—Platnick and Shadab (1976a).

***Drassyllus* cf. *aprilinus* (Banks), 1904**

Bibliography.—Kaston (1948).

Comments.—A female was reported (Banks *et al.*, 1932) from the Wichita National Forest as *Callilepis imbecilla*.

***Drassylus* sp.**

Comments.—The genus *Drassylus* is in need of revision. We are unable to determine specific identifications on two forms from the Refuge.

***Gnaphosa frontinalis* Keyserling, 1887**

Bibliography.—Platnick and Shadab (1975a).

***Gnaphosa sericata* (L. Koch), 1866**

Bibliography.—Platnick and Shadab (1975a).

***Haplodrassus chamberlini* Platnick and Shadab, 1975**

Bibliography.—Platnick and Shadab (1975b).

***Haplodrassus signifer* (C. L. Koch), 1839**

Bibliography.—Platnick and Shadab (1975b).

***Herpyllus ecclesiasticus* Hentz, 1832**

Bibliography.—Platnick and Shadab (1977).

Comments.—Reported (Branson, 1966; Grothaus, 1968) elsewhere in Oklahoma as *Herpyllus vasifer* (Walckenaer), 1837.

***Micaria* sp.**

Comments.—The genus *Micaria* is in need of revision. We are unable to make specific identifications on two (?) forms (known from one immature and a male) from the Refuge.

***Poecilochroa* sp.**

Comments.—The genus *Poecilochroa* is in need of revision. We are unable to make specific identification on two males taken during May in short grass pastures.

***Rachodrassus exlineae* Platnick and Shadab, 1976**

Bibliography.—Platnick and Shadab (1976b).

***Zelotes hentzi* Barrows, 1945**

Bibliography.—Kaston (1948).

***Zelotes* cf. *puritanus* Chamberlin, 1922**

Bibliography.—Chamberlin (1922).

Comments.—A female was captured at Sulphur Flats in late November.

Zelotes sp.

Comments.—The genus *Zelotes* is in need of revision. We are unable to determine specific identifications on two males collected in oak litter during April and May.

Family CLUBIONIDAE Wagner, 1888

Agroeca sp.

Comments.—A specimen, too immature for specific identification, was collected on 6 September at Sulphur Flats.

Castianeira longipalpus (Hentz), 1847

Bibliography.—Reiskind (1969).

Castianeira crocata (Hentz), 1847

Bibliography.—Reiskind (1969).

Castianeira trilineata (Hentz), 1847

Bibliography.—Reiskind (1969).

Clubiona sp.

Bibliography.—Edwards (1958).

Comments.—Three females were taken from oak litter, two on January 1, the other in late November. These forms apparently represent an as yet undescribed species but one that is probably closely related to *C. kiowa* Gertsch, 1941.

Clubiona pygmaea Banks, 1892

Bibliography.—Edwards (1958).

Clubionoides excepta (L. Koch), 1866

Bibliography.—Edwards (1958).

Phrurotimpus alarius (Hentz), 1847

Bibliography.—Kaston (1945, 1948).

Phrurotimpus sp.

Bibliography.—Kaston (1945, 1948).

Comments.—This species is probably the same as the *Phrurotimpus borealis* reported (Branson, 1966) elsewhere in Oklahoma. A female is known from the Refuge.

Scotinella sp.

Bibliography.—Kaston (1948, 1976).

Comments.—Two females of this small form have been collected, one from oak litter (early November) the other from under a rock (December). We think these specimens represent an undescribed species that is closely related to *S. similis* Banks, 1845. Another member of the genus has been reported (Banks *et al.*, 1932; Branson, 1966) in Oklahoma under the generic name *Phrurolithus*. The genus *Scotinella* was reported erroneously (Branson and Drew, 1972) in the family Salticidae.

Syrisca sp.

Bibliography.—Gertsch (1935b).

Comments.—The only specimen from the Refuge is too immature for specific identification but it might be *Syrisca affinis* (Banks), 1897, which is known from Texas.

Family ANYPHAENIDAE Bertkau, 1878

Anyphanea fraterna (Banks), 1896

Bibliography.—Platnick (1974).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Gayenna celer* Hentz, 1847.

Aysa gracilis (Hentz), 1847

Bibliography.—Platnick (1974).

Comments.—Reported (Banks *et al.*, 1932) elsewhere in Oklahoma as *Anyphanea gracilis* (Hentz).

Family THOMISIDAE Sundevall, 1833

Coriarachne versicolor Keyserling, 1880

Bibliography.—Bowling and Sauer (1975).

Misumenoides formosipes (Walckenaer), 1837

Bibliography.—Schick (1965).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Runcinia aleatoria* (Hentz), 1847, and elsewhere in Oklahoma as *Misumenoides aleatoria* (Hentz) by Branson (1966).

Misumenops asperatus (Hentz), 1847

Bibliography.—Gertsch (1939); Schick (1965).

Comments.—All specimens reported (Banks *et al.*, 1932) from the Wichita National Forest are *Misumenops celer* (Hentz) according to Cokendolpher *et al.* (1979). Recent collections have included specimens of the true *M. asperatus*.

Misumenops celer (Hentz), 1847

Bibliography.—Gertsch (1939); Schick (1965).

Misumenops dubius (Keyserling), 1880

Bibliography.—Gertsch (1939); Schick (1965).

Misumenops oblongus (Keyserling), 1880

Bibliography.—Gertsch (1939); Schick (1965).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Misumena americana* Keyserling, 1880.

Tmarus angulatus (Walckenaer), 1837

Bibliography.—Gertsch (1939).

Comments.—Although not known from the Refuge, a specimen was taken a few kilometers south of the Cache Gate (Eagle Park, City of Cache). The specimen was taken while sweeping grasses in mid October. Reported (Banks *et al.*, 1932) elsewhere in Oklahoma as *Tmarus caudatus* Hentz, 1847.

Xysticus apachecus Gertsch, 1933

Bibliography.—Gertsch (1953); Schick (1965).

Xysticus auctificus Keyserling, 1880

Bibliography.—Gertsch (1953).

Xysticus ferox (Hentz), 1847

Bibliography.—Gertsch (1939, 1953).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Xysticus cunctator* Thorell, 1877.

Xysticus funestus Keyserling, 1880

Bibliography.—Gertsch (1953).

Comments.—Reported (Banks *et al.*, 1932) elsewhere in Oklahoma as *Xysticus nervosus* Banks, 1892, and as *Xysticus tumefactus* (Walckenaer), 1837, by Branson (1966).

Xysticus pallax (O. Pickard-Cambridge), 1894

Bibliography.—Gertsch (1953); Schick (1965).

Xysticus cf. *pallax* (O. Pickard-Cambridge), 1894

Comments.—Two females of this species were taken in a prairie in mid October.

Xysticus triguttatus Keyserling, 1880

Bibliography.—Gertsch (1953).

Family PHILODROMIDAE Thorell, 1870

Ebo punctatus Sauer and Platnick, 1972

Bibliography.—Sauer and Platnick (1972).

Philodromus keyserlingi Marx, 1890

Bibliography.—Dondale (1961); Dondale and Redner (1976).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Philodromus pernix* Blackwall, 1846, and described as *Philodromus washita* Banks, 1932, elsewhere in Oklahoma.

Philodromus pratariae (Scheffer), 1904

Bibliography.—Dondale and Redner (1969).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Philodromoides pratariae* Scheffer.

Thanatus altimontis Gertsch, 1933

Bibliography.—Dondale *et al.* (1964).

Thanatus formicinus (Cleck), 1757

Bibliography.—Dondale *et al.* (1964).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Thanatus lycosoides* Emerton, 1892. The author of this species in not Oliver, 1789, as reported by Branson (1966) and Branson and Drew (1972).

Tibellus duttoni (Hentz), 1847

Bibliography.—Gertsch (1933).

Family SALTICIDAE Blackwall, 1841

Eris marginata (Walckenaer), 1837

Bibliography.—Kaston (1973).

Comments.—Reported (Branson, 1966) elsewhere in Oklahoma as *Paraphidippus marginatus* (Walckenaer).

Habrocestum pulex Hentz, 1846

Bibliography.—Peckham and Peckham (1909); Kaston (1948).

Hentzia palmarum (Hentz), 1832

Bibliography.—Peckham and Peckham (1909); Kaston (1948).

Comments.—Reported (Branson, 1966, 1968) elsewhere in Oklahoma as *Hentzia ambigua* (Walckenaer), 1837.

Maevia inclemens (Walckenaer), 1837

Bibliography.—Barnes (1955, 1958).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Maevia niger* Hentz, 1845.

Marpissa lineata (C. L. Koch), 1848

Bibliography.—Barnes (1958).

Marpissa pikei Peckham and Peckham, 1888

Bibliography.—Barnes (1958).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Hycitia pikei* Peckham and Peckham.

Metacyrba taeniola Hentz, 1845

Bibliography.—Barnes (1958).

Metacyrba undata (DeGeer), 1778

Bibliography.—Reported (Banks *et al.*, 1932; Branson, 1966; Branson and Drew, 1972) in Oklahoma as *Marpissa undata* DeGeer.

Metaphidippus galathea (Walckenaer), 1837

Bibliography.—Kaston (1973).

Comments.—Reported (Banks *et al.*, 1932) in Oklahoma as *Dendryphantès nubulis* Hentz, 1846.

Metaphidippus cf. *pervagus* (Peckham and Peckham), 1909

Bibliography.—Peckham and Peckham (1909).

Metaphidippus cf. *unicus* (Chamberlin and Gertsch), 1930

Bibliography.—Gertsch and Riechert (1976).

***Pellenes coecatus* (Hentz), 1846**

Bibliography.—Kaston (1945); Richman and Cutler (1978).

Comments.—Reported (Branson, 1959, 1966, 1968) elsewhere in Oklahoma as *Pellenes cornatus* (Hentz), 1846, and as *Habronatus cornatus* (Hentz) by Bailey and Chada (1968) and Grothaus (1968).

***Pellenes limatus* Peckham and Peckham, 1900**

Bibliography.—Peckham and Peckham (1909).

***Pellenes philipi* Gertsch and Jellison, 1939**

Bibliography.—Gertsch and Jellison (1939).

Comments.—Three males taken in pitfall traps set in short grass prairies in April and May are the first records of this species in Oklahoma.

***Pellenes* sp.**

Comments.—A male and female of this genus, apparently representing an undescribed species, were taken in pitfall traps set in a bermuda grass pasture during March.

***Phidippus apacheanus* Chamberlin and Gertsch, 1929**

Bibliography.—Chamberlin and Gertsch (1929); Richman and Cutler (1978).

Comments.—Males reported as *Phidippus ardens* Peckham and Peckham, 1901, females as *Phidippus insolens* (Hentz), 1844, by Banks *et al.* (1932).

***Phidippus audax* Hentz, 1845**

Bibliography.—Peckham and Peckham (1909); Kaston (1948).

Comments.—Reported (Banks *et al.*, 1932; Branson, 1966, 1968; Branson and Drew, 1972) elsewhere in Oklahoma as *Phidippus variegatus* (Lucas), 1833.

***Phidippus clarus* Keyserling, 1884**

Bibliography.—Kaston (1948); Richman and Cutler (1978).

Comments.—Reported (Branson, 1966, 1968) elsewhere in Oklahoma as *Phidippus rimator* (Walckenaer), 1837. *Phidippus rimator* is considered a *nomen dubia* by Richman and Cutler (1978), and as such should be removed from the state list.

***Phidippus mystaceus* Hentz, 1846**

Bibliography.—Peckham and Peckham (1909); Richman and Cutler (1978).

***Phidippus pius* Scheffer, 1906**

Bibliography.—Peckham and Peckham (1909); Richman and Cutler (1978).

***Phidippus rauterbergii* Peckham and Peckham, 1888**

Bibliography.—Bryant (1942).

***Phidippus texanus* Banks, 1905**

Bibliography.—Bryant (1942).

Comments.—Males reported (Banks *et al.*, 1932) as *Phidippus insolens* (Hentz), 1844. See comments under *Phidippus apacheanus* above.

Phlegra fasciata (Hahn), 1896

Bibliography.—Peckham and Peckham (1909).

Salticus austensis Gertsch, 1936

Bibliography.—Peckham and Peckham (1909); Gertsch (1936).

Comments.—Reported (Branson, 1968) elsewhere in Oklahoma as

Salticus albocinctus Peckham and Peckham, 1896.

Sassacus papenhoei Peckham and Peckham, 1895

Bibliography.—Peckham and Peckham (1909).

Comments.—Reported (Horner, 1975) elsewhere in Oklahoma as

Tutelina elegans (Hentz), 1846.

Sitticus sp.

Comments.—Three specimens, too immature for specific identification, were taken from under rocks during November.

Synageles noxiosa (Hentz), 1850

Bibliography.—Kaston (1948, 1976).

Thiodina puerpera Hentz, 1846

Bibliography.—Peckham and Peckham (1909).

Order OPILIONES

Family COSMETIDAE Simon, 1879

Vonones sayi (Simon), 1879

Bibliography.—Simon (1879); Roewer (1923).

Comments.—Reported (Banks *et al.*, 1932) from the Wichita National Forest as *Cynorta sayii* Simon.

Family LEIOBUNIDAE Banks, 1893

Eumesosoma roeweri (Goodnight and Goodnight)

Bibliography.—Cokendolpher (1980).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Mesosoma niger* Say, 1821.

Leiobunum crassipalpe Banks, 1900

Bibliography.—Davis (1934).

Comments.—Clarence Goodnight has indicated (personal communication) this species may be a synonym of *Leiobunum vittatum* (Say), 1821.

Leiobunum leiopenis Davis, 1934

Bibliography.—Davis (1934).

Leiobunum politum Weed, 1889

Bibliography.—Davis (1934).

Leiobunum relictum Davis, 1934

Bibliography.—Davis (1934).

Leiobunum townsendi Weed, 1893

Bibliography.—Davis (1934).

Leiobunum vittatum (Say), 1821

Bibliography.—Davis (1934).

Comments.—Reported (Banks *et al.*, 1932) in the Wichita National Forest as *Liobunum dorsatum* Say, 1821.

Trachyrhinus favosus (Wood), 1871

Bibliography.—Cokendolpher (1981).

Order SCORPIONES

Family BUTHIDAE Simon, 1879

Centruroides vittatus (Say), 1821

Bibliography.—Ewing (1928); Stahnke (1956); Stahnke and Calos (1977).

Comments.—Reported (Banks *et al.*, 1932) elsewhere in Oklahoma as *Centrurus carolinianus* (Palisot de Beauvois), 1805.

Order SOLPUGIDA

Family EREMOBATIDAE Roewer, 1934

Eremobates simoni Muma, 1970

Bibliography.—Muma (1970).

Comments.—Reported (Banks *et al.*, 1932) in Oklahoma as *Eremobates pallipes* (Say), 1823.

Order UROPYGIDA

Family THELYPHONIDAE Lucas, 1835

Mastigoproctus giganteus (Lucas), 1835

Bibliography.—Rowland and Cooke (1973).

Comments.—Although not known from the Refuge, a specimen was taken a few kilometers south in the City of Cache (Eagle Park). The specimen was dug up while building the foundation of the Ven-Am Research Center in the spring of 1962. After examination by the junior author, the specimen was released in the Park. This is the first record of the order in Oklahoma.

PROBLEMATIC SPECIES

Order ARANEAE

Family MICRYPHANTIDAE Bertkau, 1872

Comments.—The family Micryphantidae (=Erigoniidae) is in need of revision. Among the specimens collected in the Refuge are adults (males and females) of at least three species we are unable to identify to the generic level.

Family ARANEIDAE Simon, 1895

Epeira displicata Hentz, 1847

Comments.—One immature reported (Banks *et al.*, 1932) from the Wichita National Forest is the only record for the region. Levi (1974) stated *Epeira displicata* is a synonym of *Araniella displicata* (Hentz), 1847, but recorded no

specimens from Oklahoma. Until adults can be found in the Refuge, this species should be removed from the list. However, *E. displicata* should remain on the state list because adults are known from Stillwater (Bailey and Chada, 1968).

Family GNAPHOSIDAE Pocock, 1884

Zelotes ater Hentz, 1832

Comments.—The specimen reported (Banks *et al.*, 1932) from the Wichita National Forest is very questionable due to its immature state. Branson (1966) stated *Z. ater* is a synonym of *Zelotes subterraneus* (C. L. Koch), 1839. Both records should be removed from the Refuge list until adults can be captured.

Family THOMISIDAE Sundevall, 1833

Xysticus gulosus Keyserling, 1880

Comments.—The specimen reported (Banks *et al.*, 1932) from the Wichita Forest is immature. It is not *X. gulosus*, but might be *Xysticus triguttatus* Keyserling, 1880. The specimen(s) reported (Banks *et al.*, 1932) from Cleveland County could not be located. Other Oklahoma records (Branson, 1966, 1968) of *X. gulosus* are based also on immatures. *Xysticus gulosus* should be removed from the Refuge list until adults can be captured.

Family SALTICIDAE Blackwall, 1841

Pellenes peregrinus Peckham and Peckham, 1883

Comments.—The specimens reported (Banks *et al.*, 1932) from the Wichita National Forest are too immature for specific identifications. Branson (1966) considered this material to represent *Habronattus viridipes* (Hentz), 1846. As Branson (1966) never examined the specimens, *P. peregrinus* should be removed from the state list until adults can be captured.

Phidippus howardi Peckham and Peckham, 1896

Comments.—All specimens reported (Banks *et al.*, 1932) are too immature for specific identification. Edwards (in Richman and Cutler, 1978) considered *P. howardi* a junior synonym of *Phidippus audax* Hentz, 1845. *Phidippus howardi* should be removed from the state list.

Phidippus podagrosus Hentz, 1844

Comments.—All specimens reported (Banks *et al.*, 1932) except a male from Sand Creek, Osage County, are too immature for specific identifications. The male is *Phidippus dorsalis* Bryant, 1942, a new record for the state. Peckham and Peckham (1888) considered *P. podagrosus* a junior synonym of *Phidippus insolens* (Hentz), 1844, which is a *nomen dubium* (see Richman and Cutler, 1978; and comments under *Phidippus apacheanus* Chamberlin and Gertsch and *Phidippus texanus* Banks in the present publication). *Phidippus insolens* and *P. podagrosus* should be removed from the state list, but *P. dorsalis* should be added.

ACKNOWLEDGMENTS

We would like to thank the personnel and officials of the Wichita Mountains Wildlife Refuge who kindly aided us during numerous collecting trips, and D. C. Parmley and C. Bryce for

their continued assistance in field collections. Our appreciation is extended also to the United States Fish and Wildlife Service for permits to work on the Refuge. Several systematists provided identifications or verifications of specimens and are deserving of recognition: J. Brookhart, Solpugida; D. E. Bixler and D. C. Lowrie, some Lycosidae; W. J. Gertsch, Ctenizidae; N. I. Platnick, some Gnaphosidae; G. B. Edwards, D. Richman, and W. Maddison, some Salticidae. We are extremely grateful to H. P. Brown and the Stoval Museum, University of Oklahoma, for the loan of specimens forming the basis of Banks, Newport, and Bird's 1932 paper. N. V. Horner of Midwestern State University provided the senior author with laboratory space and equipment during this study. Financial support was granted to the senior author by the Ven-Am Research Center, Eagle Park, Cache, Oklahoma.

LITERATURE CITED

- BAILEY, C. L., AND H. L. CHADA. 1968. Spider populations in grain sorghums. *Ann. Entomol. Soc. Amer.*, 61:567-571.
- BAILEY, C. L., R. H. GROTHAUS, AND W. A. DREW. 1968. Additions to the spider fauna of Oklahoma. *Proc. Oklahoma Acad. Sci.*, 47:32-34.
- BANKS, N., N. M. NEWPORT, AND R. D. BIRD. 1932. Oklahoma spiders. *Publ. Univ. Oklahoma Biol. Surv.*, 4:3-49.
- BARNES, R. D. 1955. North American jumping spiders of the genus *Maevia*. *Amer. Mus. Novit.*, 1746:1-13.
- . 1958. North American jumping spiders of the subfamily Marpissinae (Araneae, Salticidae). *Amer. Mus. Novit.*, 1867:1-50.
- . 1959. The *lapidicina* group of the wolf spider genus *Pardosa* (Araneae, Lycosidae). *Amer. Mus. Novit.*, 1960:1-20.
- BEATTY, J. A. 1970. The spider genus *Ariadna* in the Americas. *Bull. Mus. Comp. Zool.*, 139:433-518.
- BERMAN, J. D., AND H. W. LEVI. 1971. The orb weaver genus *Neoscona* in North America (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 141:465-500.
- BISHOP, S. C., AND C. R. CROSBY. 1926. Notes on the spiders of the southeastern United States with descriptions of new species. *J. Elisha Mitchell Sci. Soc.*, 41:163-212.
- BLAIR, W. F., AND T. H. HUBBELL. 1938. The biotic districts of Oklahoma. *Amer. Midland Nat.*, 20:425-454.
- BOWLING, T. A., AND R. J. SAUER. 1975. A taxonomic revision of the crab spider genus *Coriarachne* (Araneida, Thomisidae) from North America north of Mexico. *J. Arachnol.*, 2:183-193.
- BRADY, A. R. 1964. The lynx spiders of North America, north of Mexico (Araneae: Oxyopidae). *Bull. Mus. Comp. Zool.*, 131:429-518.
- BRANSON, B. A. 1958. Fourteen additions to the known spider fauna of Oklahoma. *Proc. Oklahoma Acad. Sci.*, 38:60-62.
- . 1959. Further additions to the known spider fauna of Oklahoma. *Proc. Oklahoma Acad. Sci.*, 39:49-50.

- . 1966. Spiders of the University of Oklahoma Biological Station, Marshall County, Oklahoma, with observations on the species used by mud-daubers as larval food, and a review of the species known from Oklahoma. *Southwestern Nat.*, 11:338-371.
- . 1968. Distributional notes on Oklahoma spiders with additions to and annotations on the known fauna. *Proc. Oklahoma Acad. Sci.*, 47:48-53.
- BRANSON, B. A., AND W. A. DREW. 1972. Distribution of Oklahoma grassland spiders and new records for the state. *Proc. Oklahoma Acad. Sci.*, 52:34-38.
- BRYANT, E. B. 1942. Descriptions of certain North American *Phidippus* (Araneae). *Amer. Midland Nat.*, 28:693-707.
- CARICO, J. E. 1972. The Nearctic spider genus *Pisaurina* (Pisauridae). *Psyche*, 79:295-310.
- . 1973. The Nearctic species of the genus *Dolomedes* (Araneae: Pisauridae). *Bull. Mus. Comp. Zool.*, 144:435-488.
- CHAMBERLIN, R. V. 1908. Revision of North American spiders of the family Lycosidae. *Proc. Acad. Nat. Sci. Philadelphia*, 60:158-318.
- . 1922. The North American spiders of the family Gnaphosidae. *Proc. Biol. Soc. Washington*, 35:145-172.
- . 1923. The North American species of *Mimetus*. *J. Entomol. Zool. Claremont*, 15:3-7.
- CHAMBERLAIN, R. V., AND W. J. GERTSCH. 1929. New spiders from Utah and California. *J. Entomol. Zool. Claremont*, 21:101-112.
- . 1958. The spider family Dictynidae in America north of Mexico. *Bull. Amer. Mus. Nat. Hist.*, 116:1-152.
- CHAMBERLIN, R. V., AND W. IVIE. 1940. Agelenid spiders of the genus *Cicurina*. *Bull. Univ. Utah*, 30(18):1-108.
- . 1941. North American Agelenidae of the genera *Agelenopsis*, *Calilena*, *Ritalena*, and *Tortolena*. *Ann. Entomol. Soc. Amer.*, 34:585-616.
- COKENDOLPHER, J. C. 1980. Replacement name for *Mesosoma* Weed, 1892, with a revision of the genus (Opiliones, Phalangidae, Leiobuninae). *Occas. Papers Mus., Texas Tech Univ.*, 66:1-19.
- . 1981. Revision of the genus *Trachyrhinus* Weed (Opiliones, Phalangidae). *J. Arachnol.*, 00:000.
- COKENDOLPHER, J. C., N. V. HORNER, AND D. T. JENNINGS. 1979. Crab spiders of north-central Texas (Araneae: Philodromidae and Thomisidae). *J. Kansas Entomol. Soc.*, 52:723-734.
- CROSBY, C. R. 1905. A catalogue of the Erigoneae of North America, with notes and descriptions of new species. *Proc. Acad. Nat. Sci. Philadelphia*, 57:301-343.
- CROSBY, C. R., AND S. C. BISHOP. 1928. Revision of the spider genera *Erigone*, *Eperigone* and *Catabrithorax* (Erigoneae). *New York State Mus. Bull.*, 278:3-97.
- DAVIS, N. 1934. A revision of the genus *Liobunum* (Opiliones) of the United States. *Amer. Midland Nat.*, 15:661-705.
- DONDALE, C. D. 1961. Revision of the *aureolus* group of the genus *Philodromus* (Araneae: Thomisidae) in North America. *Canadian Entomol.*, 93:199-222.
- DONDALE, C. D., AND J. H. REDNER. 1969. The *infuscatus* and *dispar* groups of the genus *Philodromus* in North and Central America and the West Indies (Araneida: Thomisidae). *Canadian Entomol.*, 101:921-954.

- . 1976. A review of the spider genus *Philodromus* in the Americas (Araneida: Philodromidae). Canadian Entomol., 108:127-157.
- . 1978. Revision of the Nearctic wolf spider genus *Schizocosa* (Araneida: Lycosidae). Canadian Entomol., 110:143-181.
- . 1979. Revision of the wolf spider genus *Alopecosa* Simon in North America (Araneae: Lycosidae). Canadian Entomol., 111:1033-1055.
- DONDALE, C. D., A. L. TURNBULL, AND J. H. REDNER. 1964. Revision of the Nearctic species of *Thanatus* C. L. Koch (Araneae: Thomisidae). Canadian Entomol., 96:636-656.
- EDWARDS, R. J. 1958. The spider subfamily Clubioninae of the United States, Canada and Alaska (Araneae: Clubionidae). Bull. Mus. Comp. Zool., 118:365-436.
- EWING, H. E. 1928. The scorpions of the western part of the United States, with notes on those occurring in northern Mexico. Proc. U.S. Nat. Mus., 73:1-24.
- GERTSCH, W. J. 1933. Notes on American spiders of the family Thomisidae. Amer. Mus. Novit., 593:1-22.
- . 1935a. Further notes on American Lycosidae. Amer. Mus. Novit., 794:1-22.
- . 1935b. New American spiders with notes on other species. Amer. Mus. Novit., 805:1-24.
- . 1936. Further diagnoses of new American spiders. Amer. Mus. Novit., 852:1-27.
- . 1939. A revision of the typical crab-spiders (Misumeninae) of America north of Mexico. Bull. Amer. Mus. Nat. Hist., 76:277-442.
- . 1953. The spider genera *Xysticus*, *Coriarachne*, and *Oxyptila* (Thomisidae, Misumeninae) in North America. Bull. Amer. Mus. Nat. Hist., 102:413-482.
- . 1958a. The spider genus *Loxosceles* in North America, Central America, and the West Indies. Amer. Mus. Novit., 1907:1-46.
- . 1958b. The spider family Diguettidae. Amer. Mus. Novit., 1904:1-24.
- GERTSCH, W. J., AND W. L. JELLISON. 1939. Notes on a collection of spiders from Montana. Amer. Mus. Novit., 1032:1-13.
- GERTSCH, W. J., AND S. MULAİK. 1940. The spiders of Texas. I. Bull. Amer. Mus. Nat. Hist., 77:307-340.
- GERTSCH, W. J., AND S. E. RIECHERT. 1976. The spatial and temporal patterning of a desert spider community, with descriptions of new species. Amer. Mus. Novit., 2604:1-25.
- GIRARD, C. 1853. Arachnidians. Pp. 262-271, in Exploration of the Red River of Louisiana, in the year 1852, by R. B. Marcy. 32nd Congress, 2nd Session, 1853, Senate Executive Document 54, Washington, D.C.
- GROTHAUS, R. H. 1968. The toxicity of spider venoms. Tech. Monogr. U.S. Navy Vector Center, 1(1):1-65.
- HARREL, R. C. 1962. Further notes on invertebrates of Wild Woman Cave, Murray County, Oklahoma. Proc. Oklahoma Acad. Sci., 43:129-131.
- . 1965. Eighteen additions to the spider fauna of Oklahoma. Proc. Oklahoma Acad. Sci., 45:64-66.
- HORNER, N. V. 1975. Annual aerial dispersal of jumping spiders in Oklahoma (Araneae, Salticidae). J. Arachnol., 2:101-105.
- IVIE, W. 1969. North American spiders of the genus *Bathypantes* (Araneae, Linyphiidae). Amer. Mus. Novit., 2364:1-70.

- KASTON, B. J. 1945. New spiders in the group *Dionycha* with notes on other species. *Amer. Mus. Novit.*, 1290:1-25.
- . 1948. Spiders of Connecticut. *Bull. Connecticut Geol. Nat. Hist. Surv.*, 70:1-874.
- . 1973. Four new species of *Metaphidippus*, with notes on related jumping spiders (Araneae: Salticidae) from the eastern and central United States. *Trans. Amer. Microscop. Soc.*, 92:106-122.
- . 1976. Supplement to the spiders of Connecticut. *J. Arachnol.*, 4:1-72.
- . 1978. How to know the spiders. 3rd ed., W. C. Brown Co., Dubuque, Iowa, 272 pp.
- LEECH, R. 1972. A revision of the Nearctic Amaurobiidae (Arachnida: Araneida). *Mem. Entomol. Soc. Canada*, 84:1-182.
- LEVI, H. W. 1954. Spiders of the genus *Euryopis* from North and Central America (Araneae, Theridiidae). *Amer. Mus. Novit.*, 1666:1-48.
- . 1957a. The spider genera *Enoplognatha*, *Theridion*, and *Paidisca* in America north of Mexico (Araneae, Theridiidae). *Bull. Amer. Mus. Nat. Hist.*, 112:5-123.
- . 1957b. The spider genera *Crustulina* and *Steatoda* in North America, Central America, and the West Indies (Araneae, Theridiidae). *Bull. Mus. Comp. Zool.*, 117:367-424.
- . 1959. The spider genus *Latrodectus* (Araneae, Theridiidae). *Trans. Amer. Microscop. Soc.*, 78:7-43.
- . 1963. American spiders of the genera *Audifia*, *Euryopis* and *Dipoena* (Araneae: Theridiidae). *Bull. Mus. Comp. Zool.*, 129:121-185.
- . 1967. Cosmopolitan and pantropical species of theridiid spiders (Araneae: Theridiidae). *Pacific Insects*, 9:175-186.
- . 1968. The spider genera *Gea* and *Argiope* in America (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 136:319-352.
- . 1971. The *Diadematus* group of the orb-weaver genus *Araneus* north of Mexico (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 141:131-179.
- . 1972. The orb-weaver genera *Singa* and *Hypsosinga* in America (Araneae: Araneidae). *Psyche*, 78:229-256.
- . 1974. The orb-weaver genera *Araniella* and *Nuctenea* (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 146:291-316.
- . 1975a. The American orb-weaver genera *Larinia*, *Cercidia* and *Mangora* north of Mexico (Araneae, Araneidae). *Bull. Mus. Comp. Zool.*, 147:101-135.
- . 1975b. Additional notes on the orb-weaver genera *Araneus*, *Hypsosinga*, and *Singa* north of Mexico (Araneae, Araneidae). *Psyche*, 82:265-274.
- . 1976. The orb-weaver genera *Verrucosa*, *Acanthepeira*, *Wagneriana*, *Acacesia*, *Wixia*, *Scoloderus* and *Alpaida* north of Mexico (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 147:351-391.
- . 1977a. The American orb-weaver genera *Cyclosa*, *Metazygia* and *Eustala* north of Mexico (Araneae, Araneidae). *Bull. Mus. Comp. Zool.*, 148:61-127.
- . 1977b. The orb-weaver genera *Metepeira*, *Kaira* and *Aculepeira* in America north of Mexico (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 148:185-238.
- . 1978. The American orb-weaver genera *Colphepeira*, *Micrathena* and *Gasteracantha* north of Mexico (Araneae: Araneidae). *Bull. Mus. Comp. Zool.*, 148:417-442.

- LEVI, H. W., AND D. E. RANDOLPH. 1975. A key and checklist of American spiders of the family Theridiidae north of Mexico (Araneae). J. Arachnol., 3:31-51.
- McCRONE, J. D., AND H. W. LEVI. 1964. North American widow spiders of the *Latrodectus curacaviensis* group (Araneae: Theridiidae). Psyche, 71:12-27.
- MUMA, M. 1970. A synoptic review of North American, Central American and West Indian Solpugida (Arthropoda: Arachnida). Arthropods of Florida and Neighboring Land Areas, 5:1-62.
- MUMA, M. H., AND W. J. GERTSCH. 1964. The spider family Uloboridae in North America north of Mexico. Amer. Mus. Novit., 2196:1-43.
- PECKHAM, G. W., AND E. G. PECKHAM. 1888. Attidae of North America. Trans. Wisconsin Acad. Sci., 7:1-104.
- . 1909. Revision of the Attidae of North America. Trans. Wisconsin Acad. Sci., 16:355-646.
- PLATNICK, N. 1974. The spider family Anyphaenidae in America north of Mexico. Bull. Mus. Comp. Zool., 146:205-266.
- . 1975. A revision of the Holarctic spider genus *Callilepis* (Araneae, Gnaphosidae). Amer. Mus. Novit., 2573:1-32.
- PLATNICK, N. I., AND M. U. SHADAB. 1975a. A revision of the spider genus *Gnaphosa* (Araneae, Gnaphosidae) in America. Bull. Amer. Mus. Nat. Hist., 155:1-66.
- . 1975b. A revision of the spider genera *Haplodrassus* and *Orodorassus* (Araneae, Gnaphosidae) in North America. Amer. Mus. Novit., 2583:1-40.
- . 1976a. A revision of the spider genera *Drassodes* and *Tivodrassus* (Araneae, Gnaphosidae) in North America. Amer. Mus. Novit., 2593:1-29.
- . 1976b. A revision of the spider genera *Rachodrassus*, *Sosticus*, and *Scopodes* (Araneae, Gnaphosidae) in North America. Amer. Mus. Novit., 2594:1-33.
- . 1977. A revision of the spider genera *Herpyllus* and *Scotophaeus* (Araneae, Gnaphosidae) in North America. Bull. Amer. Mus. Nat. Hist., 159:1-44.
- REISKIND, J. 1969. The spider subfamily Castianeirinae of North and Central America (Araneae, Clubionidae). Bull. Mus. Comp. Zool., 138:163-325.
- RICHMAN, D. B., AND B. CUTLER. 1978. A list of the jumping spiders (Araneae: Salticidae) of the United States and Canada. Peckhamia, 1(5):82-110.
- ROEWER, C. F. 1923. Die Weberknechte der Erde, Systematische Bearbeitung der bisher bekannten Opiliones. Gustav Fischer, Jena, 1116 pp.
- ROGERS, C. E., AND N. V. HORNER. 1977. Spiders of guar in Texas and Oklahoma. Environ. Entomol., 6:523-524.
- ROWLAND, J. M., AND J. A. L. COOKE. 1973. Systematics of the arachnid order Uropygida (=Thelyphonida). J. Arachnol., 1:55-71.
- SAUER, R. J., AND N. I. PLATNICK. 1972. The crab spider genus *Ebo* (Araneida: Thomisidae) in the United States and Canada. Canadian Entomol., 104:35-60.
- SCHICK, R. X. 1965. The crab spiders of California. Bull. Amer. Mus. Nat. Hist., 129:1-180.
- SEELEY, R. M. 1928. Revision of the spider genus *Tetragnatha*. New York State Mus. Bull., 278:99-147.
- SHEAR, W. A. 1970. The spider family Oecobiidae in North America, Mexico, and the West Indies. Bull. Mus. Comp. Zool., 140:129-164.

- SIMON, E. 1879. Les Arachnides de France. VII. Contenant les orders des Chernetes, Scorpiones et Opiliones. Ann. Soc. Entomol. Belgique, 22:1-332.
- STAHNKE, H. L. 1956. A new species of scorpion of the Buthidae: *Centruroides pantheriensis*. Entomol. News, 67:15-19.
- STAHNKE, H. L., AND M. CALOS. 1977. A key to the species of the genus *Centruroides* Marx (Scorpionida: Buthidae). Entomol. News, 88:111-120.
- TYLER, J. D. 1977. Birds of the Wichita Mountains. Great Plains J., 16(2):135-162.
- WALLACE, H. K. 1942. A revision of the burrowing spiders of the genus *Geolycosa* (Araneae, Lycosidae). Amer. Midland Nat., 27:1-62.
- WALLACE, H. K., AND H. EXLINE. 1977. Spiders of the genus *Pirata* in North America, Central America and the West Indies (Araneae: Lycosidae). J. Arachnol., 5:1-112.

Addresses of authors: J. C. COKENDOLPHER, *The Museum and Department of Biological Sciences, Texas Tech University, Lubbock, 79409*; F. D. BRYCE, *Wichita Mountains Wildlife Refuge, Box 448, Cache, Oklahoma 73527*. Received 9 May, accepted 1 June 1979.